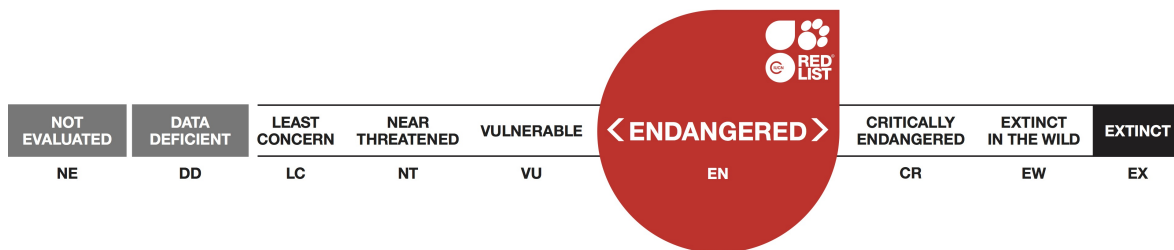


Juniperus cedrus, Canary Islands Juniper

Assessment by: Rumeu Ruiz, B, de Sequeira, M, Elliot, M & Gardner, M.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Pinopsida	Pinales	Cupressaceae

Taxon Name: *Juniperus cedrus* Webb & Berthel.

Common Name(s):

- English: Canary Islands Juniper
- Spanish: Cedro

Taxonomic Source(s):

Farjon, A. 2010. *A Handbook of the World's Conifers*. Koninklijke Brill, Leiden.

Taxonomic Notes:

Recent Red Data books (Bañares *et al.* 2008, Moreno 2008) and checklists (Rivas-Martínez *et al.* 2002, Borges *et al.* 2008) have recognised two subspecies: *Juniperus cedrus* Webb & Berthel. ssp. *cedrus* restricted to the Canary Islands and *Juniperus cedrus* ssp. *maderensis* (Menezes) Rivas Mart., Capelo, J.C. Costa, Lousã, Fontinha, R. Jardim & M. Seq restricted to Madeira. The Madeiran taxon was originally described as *Juniperus oxycedrus* ssp. *maderensis* Menezes in 1908. This conservation assessment recognises the Canary Island and Madeiran taxa as a single species - *Juniperus cedrus* Webb & Berthel.

Assessment Information

Red List Category & Criteria: Endangered B2ab(ii,iii,v); C2a(i) [ver 3.1](#)

Year Published: 2011

Date Assessed: February 2, 2010

Justification:

The total area of occupancy (AOO) is calculated to be 29 km². The AOO is based on presence within 1 km² grid cells overlaid on 1:40,000 scale maps. Presence and absence records are derived from recent, extensive surveys carried out between 2004 and 2009 (Elliot 2009, Rumeu unpublished data 2010, Sequeira pers.comm 2010). The total population (n = ca 600) consists of five subpopulations/ locations found on five islands (Gran Canaria (n =12), Gomera (n = 100), La Palma (n = 250), Tenerife (n = 200) and Madeira (n = ca 40)). Each subpopulation/location is more than 60 km from the next and no single subpopulation contains more than 50% of the total population. These subpopulations are regarded as severely fragmented. The total population is estimated to be less than 600 mature trees and no subpopulation contains more than 250 mature individuals. Regeneration in some subpopulations is poor or absent, possibly due to reduced seed set (Rumeu *et al.* 2009), the decline of avian dispersers (Nogales 1999, Rumeu 2009) and the effects of grazing. In some locations fires have led to the loss of mature individuals. Together, these factors contribute to a continuing decline in the quality of habitat and number of mature individuals. On the basis of these data, *Juniperus cedrus* meets the criteria for Endangered.

Previously Published Red List Assessments

2000 – Endangered (EN)

1998 – Endangered (E)

1998 – Vulnerable (VU)

Geographic Range

Range Description:

Restricted to the Canary Islands (Gran Canaria, Gomera, La Palma and Tenerife) and Madeira (from Pico Arieiro to Pico Ruivo).

Country Occurrence:

Native: Portugal (Madeira); Spain (Canary Is.)

Population

The population is estimated to be c. 600 sexually mature individuals. Canary Islands - 572 individuals: Gran Canaria 12; La Palma 250; Tenerife 200; La Gomera 100 (Elliot 2009). Madeira - one population with c. 40 individuals (Sequeira 2010, unpublished data).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Canary Islands:

In the Canary Islands this species has become adapted to different habitats. In Tenerife and La Palma, *J. cedrus* occurs at the timberline (2,200 m), which characteristically has low precipitation and great diurnal temperature variation. Here the dominant vegetation is of shrubs *Spartocytisus supranubius* and *Adenocarpus viscosus*. In contrast, on La Gomera, which is lower in altitude, (1,150 m.) the habitat is Laurel forest which has high levels of humidity as a result of the north-east trade winds. In Gran Canaria it only occurs on Montaña del Cedro, where it grows at altitudes between 800-900 m, here the temperatures are relatively warmer. At some of the locations (La Gomera and one location on Tenerife) there is evidence of regeneration but generally recruitment appears to be relatively poor. One factor that may be related to this, is the decline in ravens (*Corvus corax*) that are thought to have played a significant role in seed dispersal (Nogales 1999, Remeu *et al.* 2009). Recent research has revealed that winter visiting Ring Ouzels (*Turdus torquatus*) also play a key role in seed dispersal (Remeu *et al.* 2009). Additional research has indicated that the Canary Islands subpopulations produce seed with relatively lower viability, possibly due to lower pollination rates resulting from fragmentation of stands (Remeu *et al.* 2009)

Madeira The subpopulation on Madeira occurs on exposed rock faces above the laurel forest tree-line above 1,400 m in altitude. Here it belongs to the *Polysticho falcinelli-Ericetum arboreae* (Capelo *et al.* 2004). The main components include: *Erica maderinicola*, *Ilex perado*, *Laurus novocanariensis*, *Polystichum falcinellum*, *Vaccinium padifolium* & *Sorbus maderensis*. In Madeira there have not been any studies to establish whether or not there is any regeneration, however since the removal of goats in recent years the vegetation recovery rates are very encouraging.

The current distribution pattern and the restriction to almost inaccessible sites in the Canary Islands and on Madeira reflect past human disturbance. Formerly it was more widespread.

Systems: Terrestrial

Use and Trade

Canary Islands Historically the wood was exploited for its valuable, aromatic timber, and used by local people in carpentry for a various items of furniture, construction and for making boxes because of the wood's capacity to deter insect pests (Vieira 2002). Today, due to its rarity and protected status, *J. cedrus* is not utilized. Madeira In Madeira the wood was also widely used. Even in the 15th century there were already concerns on the overcutting of this species. Restrictions on harvesting this species were

ineffective; according to Silva and Menezes (1946) there were still some small woods of *J. cedrus* by the end of the 19th century, but the tree had almost vanished by the first decades of the 20th century. Today the wood is no longer used, unless it is taken from cultivated sources. The plant is extensively cultivated as an ornamental and used by the forestry service particularly along the Laurissilva Levadas (manmade irrigation channels and pathways).

Threats (see Appendix for additional information)

Canary Islands There are a variety of threats, the most severe of which is fire. In 2007 a fire on Tenerife (El Teide National Park) destroyed 30 old-growth trees. Other threats, which are detrimental to recruitment, include goats and the release of Barbary sheep (La Palma) and Muflón (Tenerife) for hunting purposes. Global warming could affect the amount of seasonal rainfall and moisture from coastal fog. Madeira Historically over-grazing, cutting and burning have been significant threats to the population. Although these threats are less today, the fast expansion of *Cytisus scoparius* following grazing is certainly a potential threat as it greatly increases the fire risks.

Conservation Actions (see Appendix for additional information)

Juniperus cedrus is a protected species in the Canary Islands and occurs in three National Parks; Parque Nacional del Teide, Tenerife; Parque Nacional de Garajonay, La Gomera; Parque Nacional de la Caldera de Taburiente, La Palma. The area affected by fire in Parque Nacional del Teide is being restored by using local provenance material (seed). In Gran Canaria, the subpopulation in Montaña del Cedro is included within the Reserva Natural Especial de Güigüi. This sub-population is considered as 'in danger of extinction' in the Regional Catalogue of Threatened Species (Ministerio de Medio Ambiente 2009). On Madeira it is protected within the Parque Natural da Madeira (Natura 2000) where all goats have been removed above 1,400 m under the authority of Direcção Regional de Florestas. This has had a positive effect on the general vegetation, but as *J. cedrus* is a slow growing tree, any benefits are unlikely to be seen for several years.

Credits

Assessor(s): Rumeu Ruiz, B, de Sequeira, M, Elliot, M & Gardner, M.

Reviewer(s): Thomas, P. & Farjon, A.

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External Resources

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Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.4. Forest - Temperate	-	Suitable	Yes
3. Shrubland -> 3.4. Shrubland - Temperate	-	Suitable	Yes

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.1. Nomadic grazing	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.8. Other		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.2. Unintentional effects (species is not the target)	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.8. Other		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.1. Intentional use: (subsistence/small scale)	Past, unlikely to return	Whole (>90%)	Rapid declines	Past impact
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Majority (50-90%)	-	-
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
7. Natural system modifications -> 7.1. Fire & fire suppression -> 7.1.1. Increase in fire frequency/intensity	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
8. Invasive & other problematic species & genes -> 8.1. Invasive non-native/alien species -> 8.1.2. Named species (Ammotragus lervia)	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		

8. Invasive & other problematic species & genes -> 8.1. Invasive non-native/alien species -> 8.1.2. Named species (Capra hircus)	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
8. Invasive & other problematic species & genes -> 8.1. Invasive non-native/alien species -> 8.1.2. Named species (Ovis aries)	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.8. Other		

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: Yes
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over entire range
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 100
Area based regional management plan: Yes
In-Place Species Management
Successfully reintroduced or introduced benignly: Yes

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Actions Needed
2. Land/water management -> 2.3. Habitat & natural process restoration

Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 29
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 5
Continuing decline in number of locations: No
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 800
Upper elevation limit (m): 2200
Population
Number of mature individuals: 600
Continuing decline of mature individuals: Yes
Extreme fluctuations: No
Population severely fragmented: Yes
Extreme fluctuations in subpopulations: No
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes

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